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PATENT APPLICATION #15
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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

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Inventor(s): James Thomas Bachmann

Serial No.: 09/033901

Examiner: S. LUU

Filing Date: Feb 28, 1998

Group Art Unit: 2173

Title: Method For Showing The Execution Trail Of Objects In A Graphical Programming Language

ASSISTANT COMMISSIONER FOR PATENTS
Washington, D.C. 20231

TRANSMITTAL OF REPLY BRIEF

Sir:

Transmitted herewith in *triplicate* is the Reply Brief with respect to the Examiner's Answer mailed on 11/30/00. This Reply Brief is being filed pursuant to 37 CFR 1.193(b) within two months of the date of the Examiner's Answer.

(Note: Extensions of time are not allowed under 37 CFR 1.136(a))

(Note: Failure to file a Reply Brief will result in dismissal of the Appeal as to the claims made subject to an expressly stated new grounds of rejection.)

No fee is required for filing of this Reply Brief.

If any fees are required please charge Deposit Account 50-1078.

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Respectfully submitted,

James Thomas Bachmann

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Bachmann

Serial No.: 09/033,901

Filed: February 28, 1998

For: METHOD FOR SHOWING THE
EXECUTION TRAIL OF OBJECTS
IN A GRAPHICAL
PROGRAMMING LANGUAGE

Art Unit: 2773

Examiner: Luu, S.

Docket No.: 10980710

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AMENDED APPEAL BRIEF UNDER 37 C.F.R. §1.192

Assistant Commissioner for Patents

Box: AF (Appeal Brief)

Washington, DC 20231

Sir:

This Amended Appeal Brief under 37 C.F.R. §1.192 is submitted in triplicate in support of the Notice of Appeal filed March 28, 2000, responding to the final Office Action of December 17, 1999.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. §1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to Agilent Technologies' Deposit Account No. 50-1078.

Certificate of Mailing

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REAL PARTY IN INTEREST

The real party in interest is the assignee, Agilent Technologies.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals or interferences that will affect or be affected by a decision in this appeal.

STATUS OF CLAIMS

Claims 1-9 stand finally rejected. No claims have been allowed. The final rejection of claims 3-9 is appealed.

STATUS OF AMENDMENTS

This application was originally filed on February 28, 1998, with claim 1. A non-final Office Action was mailed from the U.S. Patent and Trademark Office ("PTO") on July 19, 1999, rejecting claim 1. A First Response was filed with the PTO on October 12, 1999. The First Response amended claim 1 and added claims 2-9. A final Office Action was then mailed from the PTO on December 17, 1999, finally rejecting claims 1-9. A Second Response was filed with the PTO on February 15, 2000, attempting to amend claims 1 and 3. However, an Advisory Action mailed from the PTO on March 3, 2000, maintained the final rejection of claims 1-9 and indicated that the amendments of the Second Response were not entered. The final rejection of claims 3-9 is appealed.

SUMMARY OF THE INVENTION

In general, the present invention provides a system and method for showing the execution trail of objects in a graphical programming language. In a computer system employing a graphical programming language, objects or icons are displayed. Each object represents one or more lines of code from a computer program that perform a particular function or functions when executed, and an object is executed by executing the lines of code represented by the icon. As the program runs, different icons are executed as different functionality is performed. To indicate which icon is being executed, most prior art systems highlight the icon being executed as the program runs. The computer system of the preferred embodiment of the present invention keeps track of each icon that executed during a program run. After the program run has terminated, each icon that executed during the program run may be highlighted, thereby indicating which icons did and did not execute during the program run. Such information is particularly useful in helping a programmer debug the computer program, especially when an error occurs during the aforementioned program run.

ISSUE

The following issue needs to be decided as part of this appeal: whether claims 3-9 are patentable over *Wilson* in view of *Kurtenbach*.

GROUPING OF CLAIMS

With respect to claims 3-9, the claims of the group do not stand or fall together, but rather:

1. claim 3 stands or falls as a group (group 1) with respect to the rejections over *Wilson* in view of *Kurtenbach* for at least the reason that the combination of *Wilson* and *Kurtenbach* fails to suggest the step of highlighting executed icons in an iconic programming system in response to a receiving an input step that is performed subsequent to execution;
2. claims 4, 5, 7, and 8 stand or fall as a group (group 2) with respect to the rejections over *Wilson* in view of *Kurtenbach* for at least the reason that the combination of *Wilson* and *Kurtenbach* fails to suggest the steps of determining, subsequent to execution, which icons were executed during execution and of highlighting the executed icons in response to the determining step; and
3. claims 6 and 9 stand or fall as a group (group 3) with respect to the rejections over *Wilson* in view of *Kurtenbach* for at least the reasons: (1) that the combination of *Wilson* and *Kurtenbach* fails to suggest the steps of determining, subsequent to execution, which icons were executed during execution and of highlighting the executed icons in response to the determining step and (2) that the combination of *Wilson* and *Kurtenbach* fails to suggest the step of highlighting executed icons in an iconic programming system in response to a receiving an input step that is performed subsequent to execution.

THE ARGUMENT

In order for a claim to be properly rejected under 35 U.S.C. §103, the combined teachings of the prior art references must suggest all features of the claimed invention to one of ordinary skill in the art. See, e.g., *In Re Dow Chemical Co.*, 837 F.2d 469, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 642 F.2d 413, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981). Furthermore, a reference “teaches away” from the claimed invention and should not be used to reject the claimed invention under §103 “when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 2 F.3d 551, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994).

A. Group 1

Claim 3

Claim 3 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over *Wilson* in view of *Kurtenbach*. However, claim 3 presently includes the features of receiving an input “subsequent to” the execution of a plurality of icons and of highlighting each of the executed icons “in response to the receiving step.” Applicant respectfully asserts that the combination of *Wilson* and *Kurtenbach* fails to suggest or teach at least the foregoing features of pending claim 3 and that the combination is, therefore, inadequate to render pending claim 3 obvious.

In this regard, *Wilson* appears to describe an iconic programming system capable of highlighting the icon being executed during execution. In *Wilson*, a trace command causes an iconic programming system to identify the icon “whose instructions are *currently* being executed” and to highlight this icon. Col. 9, lines 58-60, (emphasis

added). See also col. 10, lines 6-58. Therefore, *Wilson* facilitates debugging by enabling a programmer to locate the icon associated with the instruction or set of instructions currently being executed by the iconic programming system. Moreover, each highlighted icon appears to have been highlighted in response to and during execution of the icon and not “in response to” an input received “subsequent to” execution of the icon. As a result, *Wilson* fails to suggest the aforementioned features of pending claim 3.

In addition, *Kurtenbach* also appears to describe an iconic programming system capable of highlighting the icon being executed during execution. However, similar to *Wilson*, the icon being executed is apparently the only icon that is highlighted. See col. 7, lines 40-41. In fact, *Kurtenbach* specifically teaches that the icons should be highlighted “to provide the user visual feed back concerning which command is *currently* being executed.” Abstract (emphasis added). Therefore, similar to *Wilson*, each highlighted icon in *Kurtenbach* appears to have been highlighted in response to and during execution of the icon and not “in response to” an input received “subsequent to” execution of the icon. Therefore, *Kurtenbach* also fails to suggest the aforementioned features of pending claim 3.

In light of the foregoing, it appears that *Wilson* and *Kurtenbach* may make it easier for a user to determine which icon is presently executing but are less useful when an execution run is terminated. In this regard, execution of the icons often fails at some point due to errors in the instructions of the icons. The present invention recognizes that it may be beneficial for a programmer during debugging to see which icons have and have not executed during an execution run that previously failed. Therefore, the methodology of the present invention, as defined by claim 3, highlights the executed icons in response to an input that is received subsequent to execution. As previously

noted, this is contrary to *Wilson* and *Kurtenbach* which teach that the icon currently being executed is highlighted and, therefore, apparently suggest that an icon should be highlighted in response to and during execution of the icon. Accordingly, Applicant respectfully submits that the combination of *Wilson* and *Kurtenbach* fails to disclose, suggest, or teach each feature of pending claim 3 and asserts that the rejection to this claim should be withdrawn.

B. Group 2

Claim 4

Claim 4 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over *Wilson* in view of *Kurtenbach*. Claim 4 presently reads as follows:

4. In an iconic programming system, wherein the iconic programming system contains an existing network of connected icons, a computer-implemented method for tracing the execution of icons, the method comprising the steps of:
executing a plurality of the icons;
indicating which of the icons are executed in the executing step;
determining, subsequent to the executing step and based on the indicating step, that the plurality of icons have been executed; and
highlighting the plurality of executed icons in response to the determining step. (Emphasis added).

Applicant respectfully asserts that the combination of *Wilson* and *Kurtenbach* fails to disclose, suggest, or teach at least the features of pending claim 4 highlighted hereinabove and that the combination is, therefore, inadequate to render pending claim 4 obvious.

As set forth hereinabove in the arguments for allowance of pending claim 3, both *Wilson* and *Kurtenbach* highlight an icon that is being executed so that a user can easily determine which icon is executing. The present invention, however, is generally concerned with helping a user to debug an iconic program by indicating which of the

icons previously executed during a run of the program. As a result, unlike the prior art of record, the highlighting of the icons may occur during the debugging phase, which often occurs *after* execution. In this regard, pending claim 4 requires the highlighting step to be performed “in response to” the determining step, which occurs “subsequent to the executing step.” As a result, a plurality of icons is highlighted *after* the plurality of icons is executed. This is contrary to *Wilson* and *Kurtenbach*, which teach that the icon presently executing should be highlighted.

Accordingly, Applicant respectfully submits that the combination of *Wilson* and *Kurtenbach* fails to suggest each feature of pending claim 4 and, therefore, requests that the rejection to claim 4 be withdrawn.

Claim 5

Claim 5 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Wilson* in view of *Kurtenbach*. Applicant submits that the pending dependent claim 5 contains all features of its respective independent claim 4. Since claim 4 should be allowed, as argued hereinabove, pending dependent claim 5 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 7

Claim 7 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over *Wilson* in view of *Kurtenbach*. However, similar to claim 4, claim 7 presently reads:

7. An iconic programming computer system containing an existing network of connected icons, the system programmed to perform the following steps:
executing a plurality of the icons;
indicating which of the icons are executed in the executing step;
determining, subsequent to the executing step and based on the indicating step, that the plurality of icons have been executed; and
highlighting the plurality of executed icons in response to the determining step. (Emphasis added).

For reasons similar to those set forth hereinabove in the arguments for allowance of claim 4, Applicant submits that features of claim 7 highlighted above are not disclosed or suggested by the prior art of record. Therefore, Applicant respectfully asserts that the rejection to claim 7, as presently set forth, is improper and should be withdrawn.

Claim 8

Claim 8 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Wilson* in view of *Kurtenbach*. Applicant submits that the pending dependent claim 8 contains all features of its respective independent claim 7. Since claim 7 should be allowed, as argued hereinabove, pending dependent claim 8 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

C. Group 3

Claim 6

Claim 6 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over *Wilson* in view of *Kurtenbach*. However, similar to claim 3, claim 6 presently includes the steps of “receiving an input subsequent to” an executing step and “highlighting” the icons executing in the executing step “in response to” a determining step that is performed “in response to” the receiving step. For reasons similar to those set forth hereinabove in the arguments for allowance of claim 3, Applicant submits that the foregoing features are not disclosed or suggested by the prior art of record. Therefore, Applicant respectfully asserts that the rejection to claim 6, as presently set forth, is improper and should be withdrawn.

In addition, Applicant submits that the pending dependent claim 6 contains all features of its respective independent claim 4. Since claim 4 should be allowed, as argued hereinabove, pending dependent claim 6 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 9

Claim 9 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over *Wilson* in view of *Kurtenbach*. However, similar to claim 3, claim 9 presently describes an iconic programming computer system configured to perform the steps of “receiving an input subsequent to” an executing step and “highlighting” the icons executing in the executing step “in response to” a determining step that is performed “in response to” the receiving step. For reasons similar to those set forth hereinabove in the arguments for allowance of claim 3, Applicant submits that foregoing features are not disclosed or suggested by the prior art of record. Therefore, Applicant

respectfully asserts that the rejection to claim 9, as presently set forth, is improper and should be withdrawn.

In addition, Applicant submits that the pending dependent claim 9 contains all features of its respective independent claim 7. Since claim 7 should be allowed, as argued hereinabove, pending dependent claim 9 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

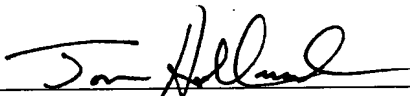
CONCLUSION

Applicant respectfully requests that the Board of Appeals reverse the Examiner's final rejections of pending claims 3-9 for the reasons indicated.

Respectfully submitted ,

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APPENDIX TO THE APPEAL BRIEF UNDER 37 C.F.R. §1.192

The Appendix is incorporated into the foregoing Appeal Brief under 37 C.F.R.

§1.192.

THE CLAIMS

- 1 1. In an iconic programming system, wherein the iconic programming
2 system contains an existing network of connected icons, a computer-implemented
3 method for tracing the execution of icons, the method comprising the steps of:
4 executing a plurality of the icons;
5 setting a flag for each icon executed in the executing step, the flag corresponding
6 with the each icon; and
7 highlighting each icon corresponding with each flag set in the setting step.

- 1 2. The method of claim 1, further comprising the step of performing the
2 setting step during the executing step.

- 1 3. The method of claim 1, further comprising the steps of:
2 receiving an input subsequent to the executing step; and
3 performing the highlighting step in response to the receiving step.

1 4. In an iconic programming system, wherein the iconic programming
2 system contains an existing network of connected icons, a computer-implemented
3 method for tracing the execution of icons, the method comprising the steps of:
4 executing a plurality of the icons;
5 indicating which of the icons are executed in the executing step;
6 determining, subsequent to the executing step and based on the indicating step,
7 that the plurality of icons have been executed; and
8 highlighting the plurality of executed icons in response to the determining step.

1 5. The method of claim 4, wherein the indicating step includes the step of
2 setting, during the executing step, a plurality of flags respectively corresponding with the
3 plurality of icons.

1 6. The method of claim 4, further comprising the steps of:
2 receiving an input subsequent to the executing step; and
3 performing the determining step in response to the receiving step.

1 7. An iconic programming computer system containing an existing network
2 of connected icons, the system programmed to perform the following steps:
3 executing a plurality of the icons;
4 indicating which of the icons are executed in the executing step;
5 determining, subsequent to the executing step and based on the indicating step,
6 that the plurality of icons have been executed; and
7 highlighting the plurality of executed icons in response to the determining step.

1 8. The system of claim 7, wherein the indicating step includes the step of
2 setting, during the executing step, a plurality of flags respectively corresponding with the
3 plurality of icons.

1 9. The system of claim 7, wherein the system is further programmed to
2 perform the steps of:
3 receiving an input subsequent to the executing step; and
4 performing the determining step in response to the receiving step